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In re Patent Application of
BERTRAND ET AL.
Serial No. 10/813,564
Filed: MARCH 30, 2004

REMARKS

Applicants thank the Examiner for the careful and thorough examination of the present application. Applicants submit that all claims are patentable and present arguments below supporting such patentability.

I. The Claimed Invention

Independent Claim 12 is directed to a comparator with two thresholds comprising a two-threshold latch including an input and an output respectively forming an input and an output of the comparator, and including a first node between a first power supply terminal and the output of the comparator. The comparator further includes a first negative feedback loop acting on the first node for setting a first threshold of the comparator as a function of a first power supply potential applied to the first power supply terminal, and as a function of a first reference potential.

The first threshold is a voltage rise triggering threshold, and the first reference potential is less than or equal to the first power supply potential, which is positive. The difference between the first power supply potential and the first reference potential is positive and increases as a function of the first power supply potential to limit an increase in the first threshold when the first power supply potential increases.

Independent Claim 23 is directed to a comparator similar to independent Claim 12 and further recites a latch connected between first and second power supply terminals and

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having a voltage rise triggering threshold and a voltage drop triggering threshold, a second node between the second power supply terminal and the output of the comparator, and a second negative feedback loop for setting a second threshold of the comparator as a function of a second power supply potential applied to the second power supply terminal, and as a function of a second reference potential applied to said second negative feedback loop. Independent Claim 33 is directed to a method counterpart of independent Claim 23.

II. The Claims Are Patentable

The Examiner has rejected independent Claims 12, 23, and 33 over Naura. Naura discloses a threshold amplifier where the transistors that set voltage rise threshold and voltage drop threshold in the amplifier are controlled by respective bias control circuits. (Col. 4, lines 23-27). Naura discloses the threshold amplifier 2 with inverter stage 2a and a stage 2b for setting the voltage rise threshold and the voltage drop threshold. (Col. 3, lines 15-17). Further, Naura further discloses that the transistors T6 and T5 set the voltage rise threshold and voltage drop threshold, respectively. (Col. 3, lines 39-42 & 55-57). Naura discloses that the first bias control circuit CP1 and the second bias control circuit CP2 are associated with transistors T5 and T6, respectively. (Col. 4, lines 22-27). More simply, control circuit CP1 controls the voltage drop threshold, and control circuit CP2 controls the voltage rise threshold. (See Figure 5, reproduced below).

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The Examiner contended that the trio of transistors T5, T7, T8 (T7, T8 being part of control circuit CP1), controlling "output pull up threshold at node C", discloses the first negative feedback loop acting on the first node for setting the voltage rise triggering threshold of the comparator, as in the claimed invention.

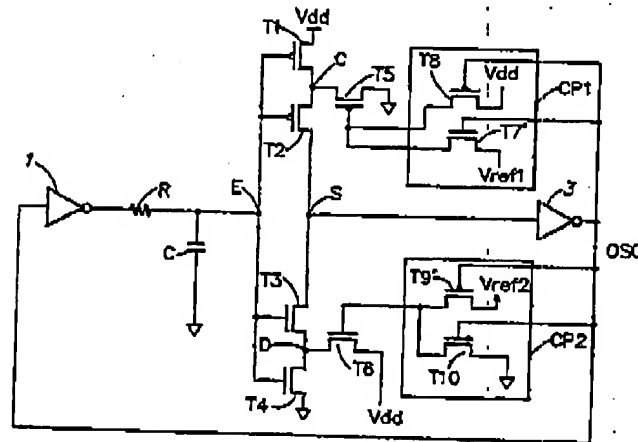


Figure 5 of the Naura Patent

Applicants submit that the Examiner has mischaracterized Naura. The cited trio of transistors, noted as circuit CP1 in Naura, expressly sets the voltage drop threshold of the amplifier of Naura. (Col. 3, lines 37-52 & Col. 4, lines 23-27). Indeed, Naura recites "[i]n practice, when the output S of the inverter stage is at zero, the transistor T5 dictates a minimum voltage in the range of the threshold voltage of a P type transistor V_{tp} on the node C." (Col. 3, lines 43-47). The Examiner provides no cite for his

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contention regarding "output pull up threshold," and the term is not recited anywhere within the Naura patent.

Moreover, the voltage (Vref1) cited by the Examiner as disclosing the first reference potential of the claimed invention does not influence the voltage at C as contended by the Examiner. Naura recites "a voltage source Vref1 is used to bias the drain of the transistor T7." (Col. 5, lines 33-34). It does not appear that the voltage at node C is a function of Vref1, which must be true for the Examiner's argument to disclose setting a voltage rise triggering threshold of the comparator as a function of a first reference potential, as in the claimed invention. Therefore, for this reason alone, independent Claims 12, 23, and 33 are patentable over the prior art.

Yet more, the Examiner contended that Naura discloses the difference between the first power supply potential and the first reference potential is positive and increases as a function of the first power supply potential to limit an increase in the voltage rise triggering threshold when the first power supply potential increases, as recited in the independent claims. The Examiner fails to cite any portion of Naura disclosing where the "output pull up threshold" is a function of Vdd or is limited by it, as required by the claims. Therefore, for this additional reason, independent Claims 12, 23, and 33 are patentable over the prior art.

Furthermore, the Examiner contended that Naura discloses the first reference potential is less than or equal

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to the first power supply potential, as recited in the independent claims. The Examiner cites Vref1 of Naura as disclosing the first reference potential and Vdd or GND as disclosing the first power supply potential. The Examiner correctly notes that Vref1 of Naura is equal to "about 1 volt." (Col. 5, line 35). Applicants respectfully point out that Vref1 of Naura cannot be less than or equal to GND ground-zero potential of Naura nor be positive, relationships recited within the independent claims.

Accordingly, for all the reasons above, independent Claims 12, 23, and 33 are patentable over the prior art. Their respective dependent claims, which recite yet further distinguishing features, are also patentable over the prior art and require no further discussion herein.

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CONCLUSIONS

In view of the arguments presented above, it is submitted that all of the claims are patentable. Accordingly, a Notice of Allowance is respectfully requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has been forwarded via facsimile number 571-273-8300 to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 this 5th day of July, 2007.

